INCH-POUND

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SUPERSEDING
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(See 6.6)

MILITARY SPECIFICATION
JACK, HYDRAULIC, AIRCRAFT MAINTENANCE,
GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the general requirements for weapon systems hydraulic jacks as used with all types of military aircraft.

1.2 Classification. All aircraft jacks shall be classified as to their design or use. These classifications shall be in accordance with Table 1.

TABLE 1. Classification of Aircraft Jacks.

CLASSIFICATION OF JACKS	CHARACTERISTIC OF JACK DESIGN	REFERENCE
LANDING GEAR (AXLE)	HAND CARRIED DOLLY MOUNTED CANTILEVER	MS26566
AIRFRAME (UNIPOD & TRIPOD)	FIXED HEIGHT VARIABLE HEIGHT UNIPOD	MS33589

1.3 Type Designation. All identical aircraft jacks shall be identified by only one type designation.

1.4 Applicability. This specification shall apply to all aircraft jacks used by the Department of Defense for military aircraft.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Naval Air Engineering Center, Systems Engineering and Standardization Department, (Code 53), Lakehurst, NJ 08733-5100, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 1730

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards, form a part of this specification to the extent specified herein, Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6 2).

SPECIFICATIONS

FEDERAL

PPP-B-601	Boxes, Wood, Cleated Plywood
PPP-B-621	Boxes, Wood, Nailed and Lock-Corner
PPP-B-636	Box, Shipping, Fiberboard

MILITARY

MIL-P-116	Preservation, Methods of
MIL-H-5606	Hydraulic Fluid, Petroleum Base, Aircraft, Missile. and Ordnance
MIL-H-6083	Hydraulic Fluid, Petroleum Base, for Preservation and Operation
MIL-H-6875	Heat Treatment of Steel, Process for
MIL-L-10547	Liner, Case, and Sheet, Overwrap, Water Vaporproof or Waterproof, Flexible
MIL-P-25732	Packing, Preformed, Petroleum Hydraulic Fluid Resistant, Limited Service at 275°F (135°C)
MIL-C-46168	Coating, Aliphatic Polyurethane, Chemical Agent Resistant
MIL-H-81019	Hydraulic Fluid, Petroleum Base, Ultra-Low Temperature
MIL-H-83282	Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Aircraft, Metric, Nato Code Number H-537
MIL-P-83461	Packing, Preformed, Petroleum Hydraulic Fluid Resistant, Improved Performance at 275°F (135°C) Sizes and Tolerances

STANDARDS

FEDERAL

FED-STD-H29	Screw-Thread Standards for Federal Services
FED-STD-595	Color

STANDARDS

MILITARY

DOD-STD-100	Engineering Drawing Practices
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-808	Finish Materials & processes for Corrosion Prevention and Control in Support Equipment
MIL-STD-810	Environmental Test Methods & Engineering Guidelines
MIL-STD-875	Type Designation System for Aeronautical and Support Equipment
MIL-STD-889	Dissimilar Metals
MIL-STD-965	Parts Control Program
MIL-STD-970	Standards and Specifications, Order of Preference for the Selection of
MIL-STD-1186	Cushioning, Anchoring, Bracing, Blocking and Waterproofing with Appropriate Test Methods
* MIL-STD-1190	Minimum Guidelines for Level C Preservation, Packing and Marking
MIL-STD-1784	Mobility, Towed & Manually Propelled Support Equipment
MIL-STD-2073	Packaging Requirement Codes
MS24380	Caster, Industrial

MS26566	Jack, Aircraft, Landing Gear (Axle)
MS28759	Hose Assembly, Rubber, Hydraulic and Pneumatic (3,000 PSI) Flared Tube (ASG)
MS33559	Adapter, Aircraft, Jacking Point, Design and Installation of
MS33589	Jack, Aircraft, Airframe (Unipod & Tripod)

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center (Attn: NPODS), 5801 labor Avenue, Philadelphia, PA 19120-5099).

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

DRAWINGS

AIR FORCE

	43A13905	Connector Assembly, Hydraulic Hose, Female
*	43A13906	Connector Assembly, Hydraulic Hose, Male
	56B6129	Socket, Ball Type Jack Pad
	7545352	Requirements for Finishes, Protective, and Codes for San Antonio ALC Ground and Ground Support Equipment

US NAVY

	1128AS121	Air Vent Assembly

(Copies of specifications, standards, drawings, publications, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Non-Government publications. The following document(s) form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed In the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issue of the documents cited in the solicitation (see 6.2).

AMERICAN WELDING SOCIETY INC

D1 .1-86 Structural Welding Code-Steel

D1 .2-83 Structural Welding Code - Aluminum

BM CHI-27 Brazing Manual 1976

(Application for copies should be addressed to the American Welding Society Inc. P.O. Box 351040 Miami, FL 33135).

(Non-government standards and other publications are normally available from the organizations which prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.5), a sample shall be subjected to first article inspection (See 6.5) in accordance with 4.4.1.

3.2 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.3 Components. The jack shall consist of the following major components:

Item or Component Name	Requirement
Hydraulic system	3.8
Controls	3.9
Bearings	3.10
Packing	3.11
Jack pad socket	3.12
Jack assembly	3.13

3.4 Selection of standards and specifications. Standards and specifications for necessary commodities and services not spectfied herein shall be selected in accordance with MIL-STD-970.

3.4.1 Selection of type designation. A type designation shall be required for all jacks used on Military Aircraft. The procedures of MIL-STD-875 shall be followed for the selection of the type designation. The Indication to be used shall be "Aircraft Maintenance Items (MMU)". All services shall comply with this requirement so that maximum standardization will occur.

3.5 Materials.

3.5.1 Fungus-proof materials. Materials that are nutrients for fungi shall not be used where it is practical to avoid them. Mere used and not hermetically sealed, they shall be treated with a fungicidal agent acceptable to the procuring activity. However, if they will be used in a hermetically sealed enclosure, fungicidal treatment will not be necessary.

3.5.1.1 Toxic Materials and Formulations. The material used shall have no adverse effect on the health of personnel when used for its Intended purpose. Questions pertinent to this effect shall be referred by the contracting activity to the appropriate departmental medical service who will act as an advisor to the contracting agency.

3.5.1.2 Hazardous material. Hazardous items are substances, mixtures, materials, components, or equipment which may cause personal injury, property damage, or environmental deterioration through transportation, use or disposal. These items shall be marked in accordance with the requirements of public law and regulations. The marking shall include as applicable: Name of product; quantity; warning symbol; signal word designating degree of hazard; affirmative statement of hazards; precautionary measures covering actions to be followed or avoided; Instructions in case of contact or exposure; antidotes and notes to physicians; instructions in case of fire, spill, or leak; instructions for handling and storage; and disposal instructions. Characteristics and operating hazards which require labeling include: toxic, high toxic, Irritant, corrosive, strong sensitizer, combustible liquid, flammable, extremely flammable liquid, dangerously reactive, pressure-generation, explosive, magnetic, ionizing radiation, non-ionizing radiation, high voltage, implosion, noise, and etiologic agent. Marking of hazardous materials shall be in conformance with established and approved procedures.

3.5.1.3 Recycled, virgin and reclaimed materials. When the intended use of the aircraft jack(s) will be jeopardized by the use of reclaimed or recycled materials these materials shall not be used. However, the following shall apply:

a. There is no exclusion to the use of recovered materials.

b. There is no requirement that an item be manufactured from virgin materials,

c. Within 1 year from the date of issue by the environmental protection agency of guidelines designating items which are or can be produced with recovered materials, specifications for such products require the use of recovered materials to the maximum extent possible.

3.5.2 Metals. Metals shall be corrosion resistant or treated to resist corrosion due to fuels, salt fog, or atmospheric conditions likely to be encountered in storage or normal service. Stock used in the fabrication of jacks shall have a properly refined structure with uniform elemental distribution, sound and free from nonmetallic inclusions, injurious porosity, excess segregation, and soft or hard spots. Castings shall be of uniform quality, free from blowholes, excess porosity, and soft or hard spots. All castings shall be subjected to a seasoning or aging process, either natural or artificial, to insure maximum stability.

3.5.2.1 Dissimilar metals. Unless specifically protected against electrolytic corrosion, dissimilar metals shall not be used in intimate conract with each other. Dissimilar metals are defined in and shall be used in accordance with MIL-STD-889.

3.5.2.2 Standard steel. Suitable steel complying with ASTM or AISI standards shall be utilized in the manufacture of the jack.

3.5.2.3 Welding material. All welding of the jack shall be in accordance with the structural welding code for steel, D1. 1-86, as issued by the American Melding Society (AWS) and welding aluminum shall be in accordance with D1 .2-83.

3.5.2.4 Brazing. All brazing shall be accomplished in accordance with the Brazing Manual 1976 issued by the American Melding Society.

3.6 Design and construction. The jack shall be axle, cantilever, unipod or tripod, designed for the load capacity required. The aircraft configuration which will effect the"jack-installation and operation shall be considered in the design of all jacks. The jack shall be designed and constructed so that all parts are made for assembly without Interference and no parts will work loose in service. The jack shall be designed and constructed to withstand the strains, jars, vibration, and other conditions incident to shipping. storage, installation and service. MS26566 or MS33589 *shall be used as design guides.

3.6.1 Component arrangement. All components shall be arranged for maximum ease of operation and maintenance consistent with the utility and efficiency required to conform to the requirements specified herein.

3.6.1.1 Component selection. All components shall be new and shall have proper clearances and adjustments. They shall so work together that the jack will supply the rated capacity.

3.6.1.2 Component maintenance. All components shall be selected on the basis of maximum life cycle with a minimum of maintenance. Selection shall be made primarily from approved standard parts using the best engineering practices. Whenever possible extended life parts shall be utilized. As required by the contract the parts control program shall be in accordance with MIL-STD-965.

3.6.2 Reliability. The jack shall have a mean-time-between-failures (MTBF) of not less than 108 cycles with a reliability of not less than 0.9908 for a 1-cycle mission at 0.9 confidence (see 6.7.4).

3.6.3 Maintainability The jack shall be designed and constructed as specified herein and to provide the following:

a. Minimum number of parts consistent with reliability and performance specified herein.

b. Minimum amount of training and time necessary for assembly, disassembly, location of trouble sources, and maintenance including servicing. Where practical, parts and components shall be located or positioned for rapid and simple inspection and recognition of excessive wear or potential failure.

c. Permit adjustments, servicing, replacement of parts and components, and other maintenance with minimum disturbance to other equipment parts or components. Parts and components shall be located for ample and rapid access unless performance or reliability will be appreciably degraded by the accessible location. In performing maintenance, if engineering reasoning or data determines that physical or visual Interference between items cannot be avoided, the item predicted to require the most maintenance shall be located for best accessibility and ease of maintenance.

d. Permit maintenance with general purpose tools and equipment normally available commercially. Use of special purpose tools and equipment shall be subject to approval by the procuring activity.

e. Minimum number of tools required for maintenance by design practices such as reducing the variety of bolt head sizes to the practicable minimum.

f. Foolproofness - Where improper installation of an item could cause malfunction of the Item or the equipment in which it is Installed, an unsymmetrical mounting means shall be provided where practical. That mounting shall allow the item to be Installed only in its proper operating position. If an unsymmetrical mounting means is not practical, the item shall be so mounted that its proper operating position can be readily and visibly determined by service maintenance personnel.

g. Repair kits and soft kits shall be designed and developed to extend the life of the jack assembly by repairing or replacing those piece parts that are subject to wear during normal use.

3.6.4 Capacity and type. The rated capacity shall be specified in U.S. tons (kg.). The type of jack shall be specified as axle, cantilever, unipod or tripod (see 1.2 and 6.2).

3.6.5 Floor loading. The jack base Or foot pads shall be of such proportions, relative to floor contact area, as to prevent floor loading in excess of 400 psi (2758KPa) when supporting a rated capacity load. However, in these circumstances where tight clearances or special accommodations are necessary, the floor loading may not exceed 600 psi (4137 kPa). Floor loadings *in excess of 400 PSI (2758KPA) will require approval of the responsible procuring activity.

3.6.6 Mobility. Jacks having a gross weight in excess of 120 pounds (54.4 kg.) shall be provided with type I, class Ib mobility in accordance with MIL-STD-1784 except that the slope requirement shall be a maximum of 15°.

3.6.6.1 Casters or wheels. Unless otherwise specified by the procuring activity, all casters shall be furnished in accordance with requirements of MS24380. Casters on tripod or axle jacks may be spring loaded for ease of placement.

3.6.6.2 Towbar. A towbar meeting the requirements for type I, class 2 of MIL-STD-1784 shall be provided. When specified, provisions shall be made to secure the towbar to the jack structure when not in use.

3.6.6.3 Carrying handles. All hand carried jacks shall have carrying handle(s). The design of the carrying handles shall favor the user. Handles shall be ruggedized and located in relationship to the center of gravity (cg) such that the jack is easily controlled while it is being moved about. Also, if possible, the carrying handles may be used to protect the controls while the jack is in operation. A jack having a gross weight not to exceed 60 lbs. (27.2 Kg) shall require only one handle. For a jack weighing between 61 lbs. (27.7 Kg) to 120 lbs. (54.4 Kg), two handles shall be required. Any jack exceeding 120 lbs. shall meet the mobility requirements stated herein.

3.6.7 Heat treatment. Heat treatment of steel materials shall be in accordance with MIL-H-6875.

3.6.8 Structural design. The jack ram and cylinder shall be designed to include a factor of safety of 1.75 based on the rated capacity of the jack. The remainder of the jack-supporting structure shall be designed for a factor of safety of 2.0 based on the rated capacity of the jack (see 6.7.8).

3.7 Performance. The jack shall operate under the following conditions:

a. An internal pressure equal to 1-1/2 times the pressure at rated capacity without leakage.

b. Maximum settling of 0.020 inch (0.51 mm) per ram per hour under rated capacity load.

c. Raising vertically 150 percent of the rated capacity load.

d. Withstanding a horizontal load equal to 15 percent of rated capacity while supporting a rated capacity load with the ram fully extended and the screw extension retracted.

e. Operating at all termperatures ranging from -65°F to +130°F (-53 9°c to 54.4°C).

f. Two hundred cycles of raising a rated capacity load and sixty cycles of raising a rated capacity load while being subjected to a horizontal load of 15 percent of rated capacity.

g. Dust particles as encountered in desert areas.

h. Exposure to salt fog or salt laden atmosphere.

j. Operating in rain, snow, or bright sunlight.

l. Interface properly and securely with the aircraft jack points.

m. The hydraulic fluid system shall have overload protection capabilities.

3.8 Hydraulic system. The hydraulic system (figure 1) shall be designed for operation with hydraulic fluid conforming to MIL-H-5606, MIL-H-83282, or MIL-H-81019 and shall consist of a jack ram and cylinder, pump, necessary bypass and check valves, reservoir, tubing, hose and fittings. The hydraulic system shall be provided with a device designed and located to bleed all entrapped air from the system. The jack shall be equipped with a self-contained, hand operated, hydraulic pumping system and shall also have provisions for connection to an external hydraulic pumping source when specified. Hydraulic hose shall conform to MS28759 and the hose shall have a female connector 43A13905 which will mate with the connector on the jack. The external leakage of the system shall not exceed 0.05 cc per hour at any pressure. For design purposes the optimum hydraulic pressure shall be 3000 psi *(20,684 kPa) at the rated capacity.

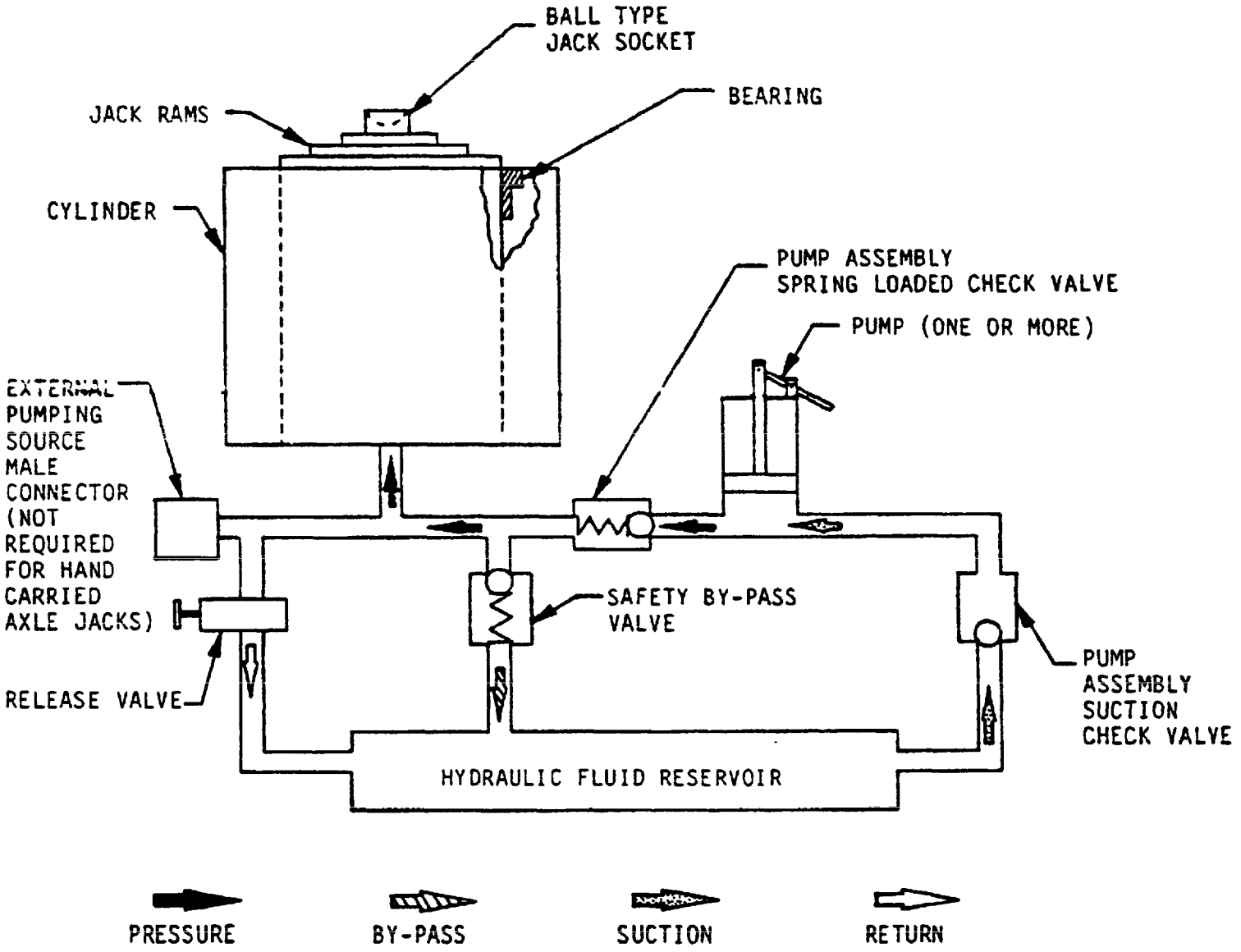


FIGURE 1. Typical schematic operation diagram, hydraulic aircraft jack.

3 8 1 Pump. The pump shall be of the hand-operated, piston type. The ratio between the jack rain and pump piston shall be such as to require a force not greater than 100 pounds (445 N) at the end of a pump handle extension to raise a load equivalent to the jack capacity. The pump handle extension shall be at least 27 inches (686 mm) long and shall be provided with a suitable grasp (knurled) surface. For jacks of less than 10 tons (9070KG) capacity a shorter handle may be provided ie 18" (0.456M) or 20" (0.51M). Provisions *shall be made to stow the pump handle on the jack. The pump inlet shall be provided with a screen of approximately 50-mesh, 0 007-inch (0.18 mm) diameter brass wire, The internal leakage of the pump shall not exceed 5.0 cc per hour.

* 3 8.2 Safety Bypass valve. The jack shall be equipped with a bypass valve adjusted and set to 105 to 110 percent of the rated capacity of the jack. This valve shall be located between the pump check valve and the jack ram to prevent overload and shall vent into the reservoir.

3.8.3 Safety device. The tripod jack ram(s) shall be provided with a mechanical safety device capable of supporting the rated load with the hydraulic pressure removed. The safety device shall prevent dropping the load **during and after the jacking operation in the event the hydraulic system fails. The safety device shall be in operation at all times when the jack ram is raised and supporting the load.**

3.8.4 Reservoir. The hydraulic fluid reservoir shall have a capacity sufficient to fully extend the jack ram plus a 10-percent minimum reserve. An air relief valve and filler plug in accordance with Drawing 1128AS121 shall be provided on top of the reservoir (not shown in Figure 1).

* 3.8.4.1 Reservoir Dumping or safety valve. The dumping or safety valve (not shown in Figure No. 1) shall be located on or near the top of the reservoir. This valve shall automatically vent excess air from the reservoir when this air is being replaced by hydraulic fluid. This valve shall be sized to accommodate the maximum flow of hydraulic fluid that may pass through the release valve. Also when relatively small-sized jacks are tipped or overturned this valve may not leak hydraulic fluid.

* 3.8.4.2 Reservoir overflow vent valve. Those hydraulic jack systems that include a connection for an external pumping source connector shall also include an overflow vent valve located at the top of the reservoir (not shown in Figure No. 1). This vent shall relieve excess fluid that may be inadvertently transferred from the external pumping source. The vent valve shall open at about 100 psig pressure to prevent any damage to the reservoir by relieving the pressure under the most extreme operating conditions (full opening the release valve while under maximum load of the jack). In order to prevent injury to the operating personnel the overflow from this valve shall be directed downward.

3.8.5 Ram cylinder. The internal surface of the ram cylinder shall be chrome plated.

3.8.5.1 Cover. A weatherproof fabric protective cover shall be provided to cover the upper portion of the retracted ram and cylinder assembly when the jack is not in use. The cover shall be attached to the jack. with a permanent corrosion-resistant cable or strap(s) to prevent loss. This requirement for a cover shall apply to tripod jacks and wheeled axle jacks.

3.8.6 Principle of Hydraulic Operation. A typical schematic for a hydraulic actuated aircraft jack is shown in Figure 1.

3.8.7 External pumping source connector. The hydraulic circuit shall have provisions for operating the jack from an external hydraulic pumping source when specified. A male connector conforming to Drawing 43A13906 shall be provided on the jack for this purpose. (The female connector P/N43A13905 shall be the mating connector on the hose). The hydraulic circuit shall be designed to provide positive assurance that pressurized fluid from the external pumping source will not enter the jack fluid reservoir during external pumping operations. A positive isolation of the hydraulic fluid reservoir from the pumping circuit shall be provided when the external pumping source is connected to the jack.

3.8.8 Ram screw extension. The ram screw extension, if so equipped, shall have a positive stop to prevent its over-extension.

3.8.9 Release valve. The release valve is located between the high pressure side of the ram and the reservoir. The opening of this valve shall release the hydraulic fluid that is under pressure so that it is returned to the reservoir. When this valve is opened the maximum flow of the fluid shall not cause any pressure increase in the reservoir. The existing air in the reservoir shall be vented by means of the dumping or safety valve.

* 3.8.10 Two Way Valve. For those aircraft jacks equipped with an external pumping source connector, a two-way valve (not shown in Figure 1) may be installed in the high pressure line between the connector and the connection to the hydraulic cylinder. This valve will be used to switch the hydraulic pumping function from either the hand pump or the external pumping source (console) and it will also be used in the exact same manner during the release of the hydraulic pressure.

3.9 Controls. Operating controls shall be grouped and conveniently located to provide maximum safety to the operator and equipment. The response to control actuation shall be smooth and positive. All operating and service controls shall be readily accessible to an operator wearing heavy gloves.

3.10 Bearings. The ram and cylinder bearings used in the jack shall be of sufficient size and contact area to provide maximum stability under the maximum load conditions. The bearings shall be fully protected to the most practical extent from abrasive particles encountered during the use of the jack under normal service conditions.

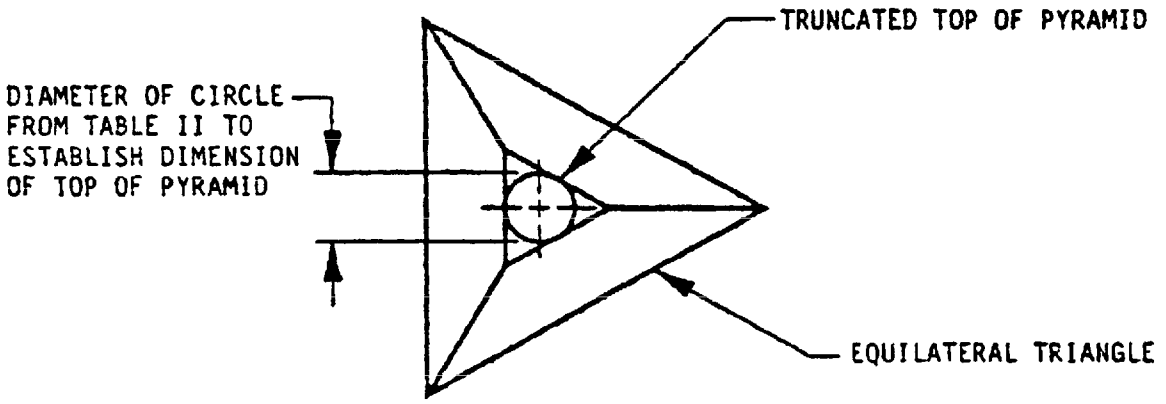
3.11 Packing. Jack ram and pump piston packings shall be of the O-ring type conforming to MIL-P-25732 or MIL-P-83461 with V-type teflon backup rings.

* 3.12 Jack pad socket. All jacks shall be provided with a jack pad socket. For those jacks mating with an adapter having a radius of 0.5 in (12.7MM) or 0175 in (19.1MM). The jack pad socket shall conform to drawing 56B6129. for those mating with the larger adapter (radius 1.245in (31.8MM). The design of the jack pad socket shall be as established by the produring agency. Such jack pad sockets may be integral to the screw extension. The jacking point adapter, MS33559 which is on the aircraft, interfaces with the socket on the jack.

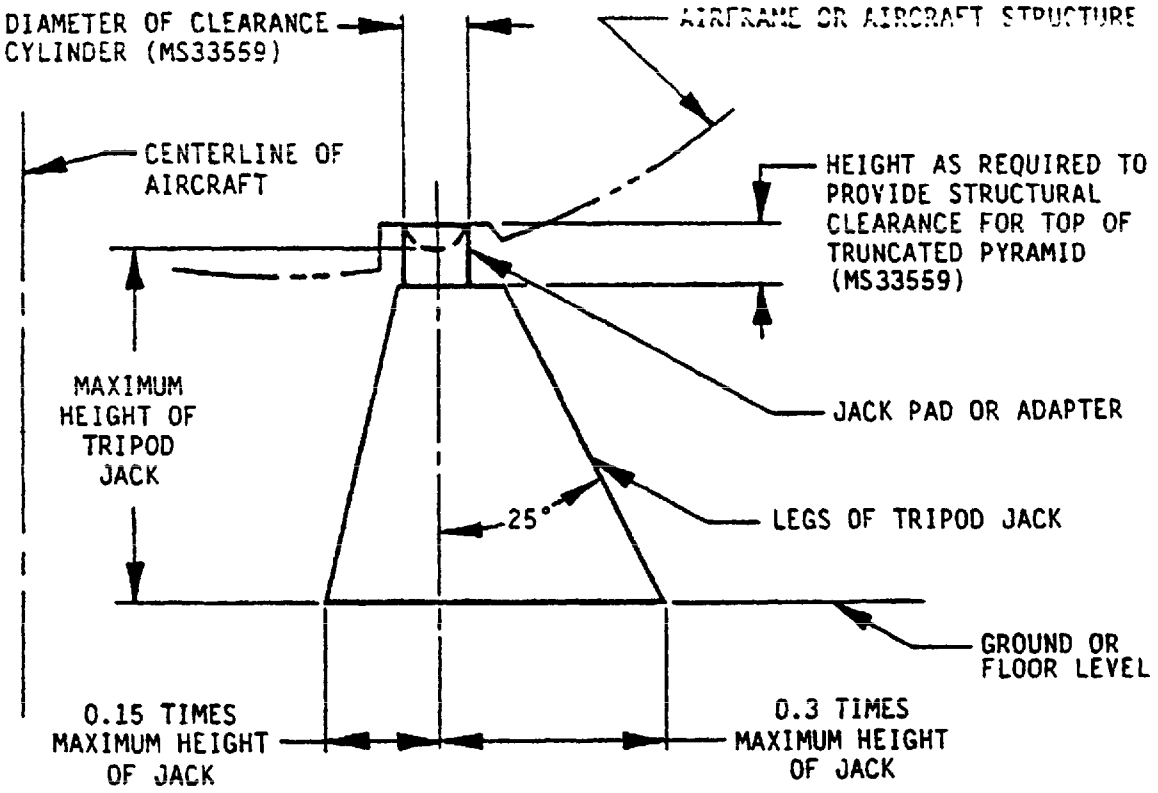
3.13 Jack assembly. The jack assembly shall be compact to provide rapid and easy emplacement for prompt operation. Its controls shall be spaced and grouped-in a logical arrangement to provide ease of control of all operations and positive functions. Any external connections shall readily provide maximum flexibility when used with other jacks or an external pumping source.

* 3.13.1 Supporting structure. For those jacks requiring a tripod structure, a rigid symmetrical tripod structure shall support the ram and cylinder assembly. The structure shall provide the complete jack with stability and safety under all combinations of load and extended height conditions. The minimum clear space to be provides under aircraft main jacking pads (adapters), to accommodate tripod jacks, shall be in the form of a truncated right pyramid having an equilateral triangular base and limiting edges at 30°° to the vertical axis. The height of the pyramid shall be sufficient to reach the jack pad (adapter) at the maximum aircraft height before jacking. The dimensions of the truncated top of the pyramid shall meet the dimensions of the inscribed circle given in table II. In addition, to assure adequate jack stability, the base of the pyramid must have a minimum leg radius from the vertical centerline of 0.3 times the maximum extended jack height. when the jack pad (adapter) is imbedded within the surface of the aircraft structure, this pyramid will have an additional clear space In the shape of a cylinder on top of the pyramid and on the vertical centerline of the pyramid. This cylinder shall be such as to meet the space requirements of the appropriate main jacking pad (adapter) configuration. These requirements are illustrated in figure 2.

3.13.2 Legs. The jack legs as required shall be designed as primary axial load carrying members and shall be fabricated of hollow, tubular construction. The upper end of each leg shall so attach to the upper end of the cylinder "assembly as to transfer the total vertical load of the ram/cylinder assemby to the legs. The lower end of each leg shall be laterally stabilized by horizontal bracing between each leg and lower end of the ram/cylinder assembly. Braces shall also be used as necessary or brace interconnect adjacent pair of legs. The foot of each leg or brace (hollow type) shall be provided with a suitable drain hole.



PLAN VIEW



SIDE VIEW

* Figure 2. Clearance and Design Features of Tripod Jacks

3.13.3 Bracing. Nontubular structural braces for legs shall be designed and positioned to provide lateral stability to the lower end of the ram/cylinder assembly but shall not support any vertical loads imposed on the ram/cylinder assembly. Positioning of these braces shall also be such as to minimize the formation of bending moments in the legs.

* 3.13.4 Clearance Dimensions for Tripod Jacks. In order to accommodate tripod jacks beneath the aircraft main jacking pads and the clearance to the adjacent airframe or structure shall be as established in Table II.

TABLE II CLEARANCE PYRAMID FOR TRIPOD JACKS

CAPACITY	APEX CIRCLE DIAMETER
less than 10,000 lbs. (44.5KN)	6 in. (15.24 CM)
10,000 to 112,000 lbs (44.5KN to 500K)	9 in (22.86 CM)
112,000 to 250,000 lbs (500 KN to 1,112KN)	12 in (30.48 CM)

NOTES:

(1) In certain situations the clearance specified in ISO 43 may be used. In addition these clearances are as shown in Figure 2.

(2) Metric equivalents are given for information only.

3.14 Part numbering of interchangeable parts. All parts having the same manufacturer's part number shall be functionally and dimensionally interchangeable. The item identification and part number requirements of DOD-STD-100 shall govern the manufacturer's part numbers and changes thereto.

3.15 Screw threads. Hardware and assembly type screw threads shall be in accordance with FED-STD-H28.

3.16 Fastening devices. Screws, pins, bolts, and similar parts shall be installed with adequate means for preventing loss of proper tightness and adjustment. When subject to removal or adjustment, such parts shall not be swaged, peened, staked, or otherwise permanently deformed.

3.17 Finishes and protective coatings. Cleaning, painting, plating, anodic film, and chemical treatment shall be in accordance with MIL-STD-808, MIL-C-46168 or Drawing 7545352. Color shall be in accordance with Table III.

TABLE III. Final finish.

Department	Color (FED-STD-595)	Specification
US Army	383 Green	MIL-C-46168
US Air Force	24052 Green	MIL-STD-808
US Navy and US Marines	13538 Yellow	MIL-STD-808

3.18 Identification of product. Equipment assemblies, and parts shall be marked for identification in accordance with MIL-STD-130. The following special marking shall be included on the final assembly.

Capacity _____ Tons (kg)

3.18.1 Additional marking. When the jack is provided with a towbar, the following marking shall be added:

Towing Speed - 3 MPH (4.8 Km/h)

3.19 Workmanship. The jack, Including all parts and accessories, shall be fabricated and finished in a workmanlike manner; particular attention shall be given to freedom from blemishes, defects, burrs and sharp edges, accuracy of dimensions, marking of parts and assemblies, alignment of parts, and tightness of assembly screws and bolts.

3.19.1 Welding. Where welding or brazing is used in the fabrication of the jack, the process used shall be in accordance with highest commercial standards and the applicable codes of the American Welding Society (AWS). All welders shall be certified in accordance with the requirements of the Amerian Welding Society. Welding shall not be resorted to as a repair measure, except that small blow holes in castings may be filled when not in critical areas, provided that the responsible Government inspector is fully informed of all pertinent details and has approved the repair procedure prior to its accomplishment. All welded joints shall be free from cracks, oxide inclusion, and injurious porosity.

3.19.2 Dimension and tolerances. Dimensions and tolerances not specified shall be as close as is consistent with the best shop practices. Where dimensions and tolerances may effect the interchangeability, operation, or performance of the jack, they shall be held or limited accordingly.

3.19.3 Screw assemblies. All assembly screws and bolts shall be tight. Certain screw assemblies are an exception such as the tripod cylinder head to leg fasteners.

3.19.4 Hydraulics. The hydraulic system shall function smoothly and positively.

3.19.5 Controls. The controls shall be grouped and spaced for easy access and prompt recognition for a correct or obvious function. Any turning action shall be With a constant and reasonable torque. All controls shall be easy to understand their functions and prompt in their response.

3.19.6 SUMMARY. In all respects, the workmanship shall be acceptable to the assigned responsible government inspector.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material , either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Classification of Inspections. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.4).

b. Quality conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in the environmental tests in 4.6.7.

4.3.1 Atmospheric conditions. Unless otherwise specified, all tests required by this specification shall be made at an atmospheric pressure of 28 (771 mm) to 32 inches (813 mm) Mercury (Hg) at a temperature of 25° ± 5°C and a relative humidity of 80 percent of less. Where tests are made with atmospheric pressure or temperature substantially different from the above values, proper allowance shall be made for the changes in instrument readings.

4.3.2 Horizontal test loads. The cycles and directions of forces of the horizontal test loads shall be as specified herein. The horizontal loads shall be applied to the jack through the jack pad socket and adapter in all tests. The jack shall be so positioned for maximum stability that the line of action of a leg is directed to be opposite to the direction of the horizontal load.

4.3.2.1 Airframe (Tripod) jack. The load shall be applied toward an opposite leg. The load shall be rotated 120° for a load test on each leg. Twenty cycles shall be directed to each leg. The jack shall be assembled with all leg extensions for this test.

4.3.2.2 Landing-gear (axle) jack. The load shall be applied along the center line of the major and minor axes with respect to the jack base. Thirty cycles shall be directed to each axis as applicable.

4.3.2.3 Cantilever (axle) jack. The load shall be applied to the jack pad perpendicular to and fore and aft along the lateral and longitudinal axis. Fifteen cycles shall be directed to each axis for a total of sixty cycles.

4.3.2.4 Adapter. For these load tests the adapter used shall be designed and installed in the test equipment in accordance with the requirements of MS33559. This adapter shall be of the correct type (size) to accept the socket which is mounted on top of the jack.

4.3.3 Vertical loads. Vertical loads (see MS33559) shall be applied to the jack through the jack pad socket and shall be colinear with the longitudinal centerline of the ram/cylinder assembly with the jack resting on a level surface.

4.3.4 Hydraulic fluid pumping source. The integral hydraulic pumping system shall be employed for all load lifting tests specified herein, except 4.6.5.1.

4.4 First Article Inspection. A first article inspection and test shall be required on jacks which are to be used with military aircraft.

4.4.1 Test sample. One jack shall be subjected to the first article tests and inspection specified in 4.4.2 and defined in 6.5.

4.4.2 First article tests. First article tests shall consist of all tests described under 4.6.

4.4.3 First Article Test Results. For all first article tests the method of the test and the test results shall be evaluated by the assigned representative of the Government. After the validation of the test results they shall be maintained for use as the reference for all subsequent quality conformance tests.

4.5 Quality conformance tests. Quality conformance tests shall be divided as follows

a. Individual Tests (4.5.1)

b. Sampling plan and tests (4.5.2)

*For follow-on production specific tests are required to verify quality conformance and the test results shall be compared to match the test results established by the frst article tests.

4.5.1 Individual Tests. Each jack shall be subjected to the following tests as defined in 4.6.

a. Visual examination of the jack (4.6.1)

b. Pressure and leakage plus bypass valve tests (4.6.3.1 and 4.6.3.3)

4.5.2 Sampling plan and tests.

4.5.2.1 Periodic sampling. Five jacks shall be selected at random from every 50 or fraction thereof produced and subjected to the static-proof test described in 4.6.4, the settling test (4.6,3.2), and the safety device test (4.6.3.4).

4.5.2. 1.1 Rejection and retest. When an item selected from a production run fails to meet the specification, no items still on hand or later produced shall be accepted until the extent and cause of failure have been determined and appropriately corrected. The contractor shall explain to the Government representative the cause of failure and the action taken to preclude recurrence. After correction, all of the tests shall be repeated.

4.5.2. 1.2 Individual tests may continue. As a part of the production program, individual tests may be continued pending the investigation of a sampling test failure. But final acceptance of the items on hand or items produced later shall not be made until it is determined that all items meet all the requirements of the specification.

4.5.3 Defects in items already accepted. The investigation of a test failure could indicate that defects may exist in items already accepted. If so, the contractor shall fully advise the procuring activity of all the defects likely to be found and the method of correcting them.

4.6 Examinations and test methods.

4.6.1 Examination of product. The jack shall be inspected to determine compliance with the requirements specified herein with respect to materials, workmanship, and marking, The jack shall be compleltely assembled in each configuration for examination.

4.6.2 Initial Inspection. The jack shall be disassembled to the maximum practical extent and completely inspected. Each component shall be checked for drawing conformance as to dimensions, finishes, et cetera and this data shall be recorded. This data then becomes the reference data to be compared with the data obtained in 4.6.9.

4.6.3 Operational test. The jack shall be operated under the following conditions to insure that the performance of the various components comply with the requirements specified herein,

4.6.3.1 Pressure and leakage test. The cylinder and ram assembly of the assembled jack shall be tested by applying hydraulic pressure equal to 150% of the pressure at rated capacity. This test shall be performed with an appropriate load on the ram assembly to preclude damage to the ram stops. Any external leakage of hydraulic fluid exceeding 0.05 cc per hour shall be cause for rejection. The internal leakage of the pump shall not exceed 5.0 cc per hour, any excess of this quantity shall be cause for rejection.

4.6.3.2 Setting test with the jack in the fully extended position and supporting a fully rated capacity load, the ram safety device as applicable placed in nonoperating position or removed, the jack shall be allowed to stand for 1 hour. The height shall be measured at the beginning and at the end of this period. The rate of settling of the jack shall not exceed 0.020 inch (0.51 mm) per ram stage per hour under rated capacity load and excess settling distance shall be cause for rejection.

4.6.3.3 Bypass valve test. Each pump shall be tested by either sealing the outlet of the pump or by applying an external vertical load and operating the pump until the bypass valve opens. The bypass valve shall be adjusted as specified in 3.8.2.

4.6.3.4 Safety device test. The safety device shall be tested with the jack ram at the fully extended position and supporting a rated capacity load. The hydraulic system shall be Instantaneously vented to simulate a hydraulic failure. The safety device shall support the load. Failure to support the" load shall be cause for rejection.

* 4.6.3.5 Air Vent Assembly Test. The air vent assembly shall be tested to verify that when normally shut it will open automatically at an air pressure of 100 ±~ 10 psig.

4.6.4 Static-proof test. If the jack is provided with a screw extension, the jack shall be tested with the screw extension in the fully extended position by raising a vertical load equivalent to 150 percent of the rated capacity to the fully extended position. While in the fully extended position, the vertical load shall be reduced to the rated capacity and maintained while the application of a horizontal load of 15 percent of the rated capacity is applied to the top of the extended screw extension. To complete the cycle, the horizontal and vertical load shall be removed and the jack ram allowed to return to the original position with not more than 50 pounds force (222 N) applied to the top of the ram. In case the jack should not be provided with a screw extension, the same loading procedure shall apply. Failure of any part of the jack as a result of this test shall be cause for rejection.

4.6.5 Endurance test. The endurance test shall be conducted at an ambient room temperature of 70° ±10°F (21° ±5°C). The test shall consist of 200 cycles of raising a load equivalent to the rated capacity vertically, and 60 cycles of raising the same load with 15 percent of rated capacity load being applied horizontally to the top of the jack through the jack pad socket adapter. One cycle shall consist of raising the ram from collapsed height to the fully extended position and return to the collapsed position. The horizontal load shall be graduated from zero in the collapsed position to 15 percent of rated jack capacity at the fully extended position, Failure of any part of the jack during this test shall be cause for rejection. At the end of the test, the force required at the end of the pump handle extension to raise the rated capacity load shall not exceed 100 pounds.

4.6.5.1 Vertical lift test. The vertical lift test shall consist of 200 cycles of vertically raising and lowering a load equivalent to the rated capacity. One cycle shall consist of raising the ram, under load, from the fully retracted position to the fully extended position and return to fully retracted position. The load shall be applied tito the jack through the jack pad socket adapter. Failure of any part of the jack as a result of this test shall be cause for rejection.

4.6.5.2 Dynamic side load test. The dynamic side load test shall consist of 60 cycles of vertically raising and lowering a load equivalent to the rated capacity with a graduated 15 percent of rated capacity load applied horizontally to the top of the jack through the jack pad socket adapter in accordance with 4.3.2. If the jack has a screw extension, it shall be retracted for this test. The horizontal load shall be graduated from zero at the collapsed position to 15 percent of rated jack capacity at the fully extended position. Failure of any part of the jack as a result of this test shall be cause for rejection.

4.6.5.3 Release valve test. The jack shall be raised to the fully extended ram position and while supporting its rated capacity load the release valve shall instantaneously open fully. This will allow the jack to retract at its maximum rate. The dumping or safety valve shall vent the air so that no damage to the reservoir or the associated plumbing shall be noted (i.e. pressure increase in the reservoir shall be minimal). This test shall consist of five (5) cycles and may be combined with other tests.

* 4.6.6 Mobility test. Jacks having mobility features as specified in 3.6.6 shall be tested for type I, class Ib mobility (maximum speed 3 mph (4.8 km/h)) as specified in MIL-STD-1784 except that the slope angle shall be 15" maximum.

4.6.7 Environmental tests. The following environmental tests shall be conducted in accordance with the specified procedures of MIL-STD-810.

4.6.7.1 Low temperature. The jack shall be subjected to the low temperature test in accordance with method 502, procedure I. At the end of the exposure period and with the temperature maintained, the jack ram shall be raised to its maximum extension and pumped until the bypass relief valve operates. The lowering valve shall be opened and the ram shall retract with not more than 50 pounds force (222 N) applied to the ram. For this test, the jack shall be serviced with hydraulic fluid conforming to MIL-H-81019. The number of full strokes necessary to fully extend the ram shall be recorded at both 70°F (21°C) and -65°F (-53.9°C). The full strokes required to fully extend the ram at -65°F (-53.9°C) shall be not more than double the strokes required at 70°F (21°C).

4.6.7.2 High temperature. The jack shall be subjected to the high temperature test in accordance with method 501, procedure I. At the end of the exposure and with the temperature maintained, the jack shall be subjected to the tests specified In 4.6.3.1 and 4.6.3.2.

4.6.7.3 Salt fog. The jack shall be subjected to the salt fog test in accordance with method 509, procedure I with the ram(s) and screw extension fully extended. At the end of thiS test, the jack shall be subjected to one cycle of the endurance test of 4.6.5 after the surface deposits are washed away and the jack wiped dry and exposed threads coated in accordance with applicable handbook.

4.6.7.4 Dust. The jack shall be subjected to the dust in accordance with method 510, procedure I with the ram(s) and screw extension fully extended. At the end of this test the jacks shall be subjected to one cycle of the endurance test of 4.6.5 after the surface deposits are washed away and the jack wiped dry. The exposed threads shall be coated in accordance with the applicable handbook.

4.6.8 Serviceability. The jack shall be Inspected and evaluated from the standpoint of ease of maintenance, servicing. and operation. Particular attention shall be given to maintenance with a minimum number of tools; maintenance with general-purpose tools and equipment, servicing and operation by personnel wearing heavy gloves, and provisions made to prevent accumulation of contamination, residue, dirt, snow, ice, et cetera, that may hinder servicing and operation.

4.6.9 Final inspection. Upon completion of all tests, the jack shall be disassembled to the maximum practical extent for a thorough examination of all parts for corrosion, excessive wear or deformation. Any evidence of corrosion, distortion, or deviation from the dimensions recorded in 4.6.2 shall be cause for rejection.

4.6.10 Reliability demonstration and test. Satisfactory completion of all tests specified herein without failure demonstrates compliance with the quantitative reliability requirements of this specification.

4.7 Inspection of preparation for delivery. Preservation, packaging, packing, and marking shall be inspected to determine compliance with the requirements of section 5 herein.

5. PACKAGING

5.1 Preservation and packaging. Preservation and packaging shall be level A or C as specified (see 6.2).

5.1.1 Level A. The jack shall be preserved and packaged in accordance with MIL-P-116, Method I.

5.1.1.1 Hydraulic system. The hydraulic system shall be filled with operational hydraulic fluid conforming to MIL-H-5606, MIL-H-83282 or MIL-H-81019 or hydraulic system preservative cor.forming to MIL-H-5082 (see 6.2).

5.1.2 Level C. The jack shall be preserved and packaged to comply with level C requirements as defined in MIL-STD-29o73

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2). Containers provided in accordance with PPP-B-621 may be used for level A or B packing for deliveries in the continental USA.

5.2.1 Level A. The jack preserved and packaged as specified in 5.1.1 shall be packed in shipping containers conforming to PPP-B-601, overseas type, style A or B. As far as practical , exterior container shall be of uniform shape and size, of minimum cube and tare consistent with the protection required, and shall contain identical quantities. Containers shall be closed and strapped in accordance with the applicable containers specification or appendix thereto. Containers shall be provided with a case liner conforming to MIL-L-10547, and shall be sealed in accordance with the appendix thereto.

* 5.2.2 Level B. The jack preserved and packaged as specified in 5.1.1 shall be packed in shipping containers conforming to PPP-B-601 or PPP-B-636, domestic type style optional. For jacks weighing less than 600 pounds (15,240 KG) domestic or export (level A) shipment may be made in boxes constructed in accordance with PPP-B-621. Exterior containers shall be of minimum cube or PPP-B-636, and tare consistent with the protection required. As far as practical, exterior containers shall be of uniform size and shape and shall containers identical quantities. Containers shall be closed and strapped in accordance with the applicable container specification or appendix thereto. For U.S. Army use, the container shall conform to PPP-B-636, class weather resistant.

* 5.2.3 Level C. Each complete jack, preserved and packaged as specified in 5.1.2, shall be packed to comply with Level C requirements as defined in MIL-STD-2073 and for those jacks shipped to the U.S. Army either MIL-STD-1190 or MIL-STD-2073 shall be used.

5.3 Physical protection. Cushioning, blocking, bracing, and bolting as required shall be in accordance with MIL-STD-1186. Except for domestic shipments, waterproofing requirements for cushioning materials and containers shall not be waived. The drop tests of MIL-STD-1186 shall be waived when preservation, packaging, and packing of the Item are for immediate use or when the drop tests of MIL-P-116 are applicable.

5.4 Shipment marking. Interior and exterior containers shall be marked in accordance with MIL-STD-129.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory).

6.1 Intended use. The jacks covered by this specification are intended for use on aircraft weapon systems. These aircraft jacks shall be used for normal and random maintenance tasks, emergency repair, component or equipment replacement, functional tests of general inspection.

6.2 Ordering data. Procurement documents should specify the following:

a. Title, number and date of this specification and the type of jack defined per Table 1.

b. Issue of DODISS to be cited in the solicitation, and If required, the specific issue of individual documents referenced (see 2.? and 2.2).

c. The capacity of the jack required and the type of jack to be provided (Landing gear (Axle), Cantilever, or Airframe (Unipod or Tripod) (see 3.6.4 & 3.18).

d. That mobility per MIL-STD-1784 shall be used as required in 3.6.6.

e. Conditions for first article testing (see 4.3.1).

f. Level of preservation, packaging, and packing (see 5.1 and 5.2).

g. Designate the specific type of hydraulic fluid to be used in preparation for delivery (see 5.1.1.1).

h. Finish, coating and Color per table III.

i. Provide for a connection to an external pumping source if required (see 3.8.7).

6.3 Data requirements. The following Data Item Descriptions (DID's) must be listed, as applicable, on the Contract Date Requirements List (DD Form 1423) when this specification is applied on a contract, in order to obtain the data, except where DOD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

Reference Paragraph	DID Number	DID Title	Suggested Tailoring
4.6.8	D1-RELI-80252	Reliability Test Report	
4.6.10	D1-R-7113	Report Maintainability Demonstration	
4.4 and 4.5	D1-T-2072/ UD1-T-20206	Test Report	Page Size (81/2 X 11)

The above DID's were those cleared as of the date of this specification, The current issue of DOD 5010. 12-L, Aquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423.

6.4 Technical manuals. The requirement for technical manuals should be considered when this specification is applied on a contract. If technical manuals are required, military specifications and standards that have been cleared and listed in DOD 5010.12-L, Aquisition Management Systems and Data Requirements Control List (AMSDL) must be listed in a separate Contraact Data Requirements List (DD Form 1423), which is included as an exhibit to the contract. The technical manuals must be acquired under separate contract line item in the contract.

6.5 First article. When first article inspection Is required, the contracting officer should provide specific guidance to offerors whether the item (s) should be a preproduction sample, a-first article sample, a first production item, a sample selected from the first aircraft jack production i terns, a standard production item from the contractor's current inventory (see 3.1), and the number of items to be tested as specified in 4.4. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.6 Superseding data. This specification supersedes and replaces the following:

	MIL-J-7398	Jack, Hand Hydraulic, Folding Tripod, 30 ton Capacity Type B-4A
L	MIL-J-7399	Jack, Hydraulic, Tripod
	MIL-J-7400	Jack, Hydraulic, Tripod 10 Ton Capacity, Type 6-6
	MIL-J-26013	Jack, Aircraft, Hydraulic, Type A-5
L	MIL-J-26014	Jack, Hand, Hydraulic, Axle 20 Ton Capacity, Type F-1
L	MIL-J-26015	Jack, Aircraft Hydraulic, Axle, 35 Ton Capacity, Type F-2
L	MIL-J-26016	Jack, Aircraft Landing Gear, 10 Ton Capacity, Type A-6
L	MIL-J-38229	Jack, Hydraulic, Tripod MMU-59/E
L	MIL-J-38395	Jack, Hydraulic, Tripod MMU-45/E
L	MIL-J-38475	Jack, Hydraulic, Tripod MMU-107/E, 40 Ton Capacity
L	MIL-J-58094	Jack, Hydraulic, 3 Ton
L	MIL-J-83010	Jack, Aircraft Landing Gear MMU-87/E, 35 Ton Capacity
L	MIL-J-83278	Jack, Hydraulic, Tripod MMU 129/E, 60 Ton to 128 Inch Range

6.7 Definitions. For the purpose of this specification, the following definitions apply:

6.7.1 Individual Test(s). Individual Test(s) shall be a test or a series of tests conducted to verify, prove, check or observe a particular characteristic, condition, dimension, performance or state of the piece-part or assembly.

6 7.2 Mean-time-between-failures. The mean life or mean-time-between-failures is the arithmetical mean (average) of the operating time between failures.

6.7.3 Cycle. One cycle consists of raising and lowering the hydraulic ram, under rated capacity load, from fully retracted position to fully extended position and returned to the fully retracted position.

6.7.4 Reliability. Reliability is defined as the probability of performing a specified function under given conditions without failure for a specified period of time. Recognizing that, in general, the rate of failure of equipment is fairly constant throughout the life of the equipment, the probability of nonfailure over an operating time Interval decreases exponentially as a function of the length of the interval, during which time there is a constant failure rate, and can be expressed as follows:

Confidence level: 90 percent

$$MTBF = \frac{\text{Total test time}}{2.3}$$

Reliability = e^{-x} where x = $\frac{\text{Mission time}}{\text{MTBF}}$

The 2.3 = $\frac{4.61}{2}$ is based on the constant for the Poisson/Chi squared distribution, assuming an exponential (2" of freedom) distribution even though the failure rate for the test time is zero.

6.7.5 Landing gear (axle) jack(s). Landing gear (axle) jacks titled as axle or landing gear are specifically designed to lift by hydraulic power the landing gear or the axle to facilitate a normal maintenace function. If the jack is light weight and is capable of being hand carried it is so defined, but for the heavier axle jacks built-in wheels or casters are provided as well as a tow bar. These jacks are dolly mounted. All of these features are designed for ease of emplacement and mobility. For the convenience of tire removal certain axle jacks may have extension arms and additional external supporting or stabilizing members.

6.7.6 Airframe (tripod) jack(s). Ainframe (tripod) jacks are designed with three legs for full support and maximum stability These legs die either fixed in length or by adding extensions their initial height may be varied hence the characteristic, variable height. These jacks are hydraulic powered and are used to lift the aircraft by its wing or fuselage.

6.7.7 Airframe (Unipod) jack(s). Airframe (Unipod) jacks are designed with one leg which can be used to support the aircraft under its tall.

6.7.8 Rated capacity. The rated capacity or load is that load or Combination of forces that the hydraulic aircraft jack shall support or resist while in a static condition.

6.8 Subject Term (Key Word) Listing.

Aircraft Jack, Airframe (Tripod)
Aitrcraft Jack, Landing Gear (Axle)
Aircraft Maintenance Hydraulic Jack
Airframe (Tripod), Aircraft Jack
Axle Jack, Aircraft Landing Gear
Cantilever Jack, Aircraft Maintenance
Hydraulic Jack, Aircraft Maintenance
Jack Aircraft, Hydraulic; Maintenance
Jack Axle, Landing Gear, Aircraft Maintenance
Jack Tripod, Airframe, Aircraft Maintenance
Jack Unipod, Airframe, Aircraft Maintenance
Landing Gear (Axle), Aircraft Jack
Maintenance, Aircraft, Hydraulic Jack
Tire Repair or Replacement, Aircraft Maintenance
Tripod Jack, Aircraft Airframe
Unipod Jack, Aircraft Airframe Standardization Agreements

6.9 International standardization agreements. Certain provisions of this specification (3.12, 3.13.1, and 3.13.4) are the subject of international standardization agreement AIR STD 25/7 and STANAG 3098. When amendment, revision, or cancellation of this specification is proposed which will modify the international? agreement concerned, the preparing activity will take appropriate action through international standardization channels Including departmental standardization offices to change the agreement or make other appropriate accommodations.

6.10 Changes from previous issue. The margins of this specification are marked with asterisks to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue..

Custodian:
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Army - AV
Navy - AS

Reviewer:
*Air Force - 11

User:
Navy - MC

Preparing activity:
Navy - AS
(Project No. 1730-0307)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-J-26149E	JACK, HYDRAULIC, AIRCRAFT MAINTENANCE, GENERAL SPECIFICATION FOR

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
	☐ USER
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ MANUFACTURER
	☐ OTHER *(Specify)*:

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

DD FORM 82 MAR 1426

PREVIOUS EDITION IS OBSOLETE.

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge *(DO NOT STAPLE)*, and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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